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ABSTRACT

In 1986, Santa Fe Community College (SFCC), in New Mexico, developed the Student Outcomes Model (SOM), an approach to student outcomes assessment which focuses on institutional mission, the college's diverse clientele, and the varied enrollment goals of its students. Through a series of ongoing outcomes studies, the SOM seeks to: identify what the college should be teaching, measure the extent to which the college is actually doing so, and collect information to help the college better fulfill its mission. The SOM is viewed as an internally valued activity, rather than an externally imposed process. To maintain consistent faculty and staff support, the data collected are incorporated into faculty performance evaluations. Student outcomes studies at SFCC seek to identify what students have learned, the applicability of the learning to their stated goals at the time of enrollment (e.g., success in transfer, success in job placement, employer satisfaction, etc.), and the students' assessment of the learning experience. Responsibility for conducting the outcomes studies rests with the departments, although research methods and tools are standardized by a special advisory committee. Outcomes assessments conducted by the college include studies examining the correlation between final exams and acquired competencies; licensure exams success rates studies; student opinion surveys; graduate and employer follow-up studies; college transfer rate studies; course success and completion rate studies; and semester withdrawal studies. Information is presented on the content of specific studies; sources of existing data; the relationship between outcomes areas and college mission; and the research methodology. (PAA)

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A Student Outcomes Model for Community Colleges
Measuring Institutional Effectiveness

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BACKGROUND

Measures of institutional effectiveness, including student outcomes studies, must consider the institution's mission and clientele. Specifically, the measures of success at a community college must differ from those of a university because the university's traditional approach to assessment does not apply. Instead, community colleges should develop unique assessment methods relevant to student goals and the educational mission of the comprehensive community college.

The Santa Fe Community College (SFCC) approach to assessing student outcomes reflects its institutional mission, clientele and the enrollment goals of the student. The SFCC mission is to provide quality learning experiences for members of the community so they may become more effective workers, family members and citizens. The college's primary goal is to help students achieve their educational goals. To measure the quality of its efforts, the college developed and implemented the SFCC Student Outcomes Model in 1986.

SFCC's model reflects institution-wide participation. Initially, the college president appointed an advisory group to generate ideas on how the college should proceed with designing an outcomes plan. A second group, the Student Outcomes Task Force, issued a final report with specific recommendations on the scope and format of the student outcomes model. After senior administrators and small groups of faculty and staff reviewed the model, it was formally adopted. The next step was to implement the model, using a "phase-in" approach with existing staff and resources. To assist with this, a new Student Outcomes Advisory Committee was appointed.

CHARACTERISTICS OF SFCC'S STUDENT OUTCOMES MODEL

1. Brief, Practical and Issues-Oriented

The Student Outcomes Model is designed to: 1) identify what the college wants to teach; 2) measure the degree to which the college is doing it; and 3) collect information to help do it better.

In reality, the SFCC outcomes studies are an ongoing series of brief, practical, issues-oriented reports with applications to specific instructional practices or programs. Typically, the studies (and subsequent reports) reflect the continuous attention to program improvement and instructional enhancement. This process properly places student outcomes as an integral function within the college.

The outcomes studies are simple and relevant and provide usable information. The format and procedures meet the standards of formal research to establish validity and reliability but remain simple to carry out. The simplicity encourages faculty and staff to conduct issues-oriented studies.

At a 1988 conference on assessing institutional effectiveness, John Losak, dean of institutional research at Miami-Dade Community College, noted that outcomes assessment does not need to be pure research. Instead, institutions should define meaningful outcomes for themselves to avoid a compulsion on simple tests and numbers -- qualitative and quantitative outcomes are of equal value.

The purpose and findings of successful outcomes studies are relevant to the daily work of education. They are practical and applicable to meeting the mission of the college and its instructional objectives. Pure, empirical research will generally have limited value to a "working" student outcomes program.

2. Integral, Not Peripheral

At SFCC, measuring instructional effectiveness is basic to the purpose and mission of the college. It is an internalized value rather than an externally imposed process.

The college curriculum is competency based. To measure the mastery of specified competencies, comprehensive final examinations are used for all required degree program courses. Student outcomes studies are also used to measure performance -- student and institutional. The studies collect qualitative data for use in future program planning and improvement.

3. Distinct From Staff Evaluation

Critical to the success of measuring effectiveness is a commitment to separate student outcomes assessment from staff or faculty performance evaluations. Student outcomes studies -- and the results they yield -- should be reported and analyzed independent of personalities. Student outcomes work remains successful when faculty and staff enthusiastically seek out opportunities to participate.

THE STUDENT OUTCOMES STUDIES

SFCC's outcomes studies address:

1) what students have learned (i.e., competencies acquired upon completion of a course or full degree/certificate program);
2) the applicability of the learning to the stated student goal at the time of enrollment (i.e., success in transfer and subsequent education; success in job placement and employer satisfaction; success in licensing exams);
3) the student's assessment of the learning experience (i.e., student opinion survey; student satisfaction assessments).

Responsibility for conducting individual outcomes studies is assigned by the president to the appropriate college dean and department. The dean provides related resources to conduct the study.

The advisory committee established a standard format for outcomes research methodology and reporting. Data collection instruments (surveys, tests, computer batching) are standardized and approved by the advisory committee. The format attempts to use existing data or databases whenever possible.

The results of the studies are reported to the Administrative and Instructional Councils and Self-Study Committee and incorporated into the institution's annual reports. Recently the findings were used in the college's marketing campaign "The Fact Is ...You Get Results."

Each of the studies provide usable data for:

* the annual instructional program review and improvement
* institutional planning and budgeting
* development of student retention programs
* development of targeted recruiting strategies
* early identification of areas of concern
* planning of faculty professional development activities
* vocational education performance reporting
* accreditation self-study processes
* student advising and educational planning

Table 1 identifies the content of the studies, including types of outcomes and general questions addressed by the plan, and sources of data. The six types of outcomes are linked directly to the college's mission and goals statement, instructional philosophy, and general education statement as published in the college catalog.

Eight outcomes studies are currently conducted.

* Correlation Study -- Final Exams and Acquired Competencies
* Licensure Exams Success Rates
* Student Opinion Survey
* Graduate Follow-up Study
* Employer Follow-up Study
* College Transfer Study
* Course Success and Completion Rates Study
* Semester Withdrawal Study

The outcomes studies are continually evolving. New areas for investigation are routinely proposed and undertaken.

Additional research questions are added each year. The questions may be studied on a one-time basis or they may become a permanent part of the model. In this approach, new federal reporting requirements are easily incorporated.

STUDENT OUTCOMES AND INSTITUTIONAL EFFECTIVENESS

Measuring student performance is part of the college's broader efforts to measure institutional performance and effectiveness. For example, the college routinely conducts consumer opinion surveys to evaluate support services such as the bookstore and food services. The registration process is evaluated each semester to find ways to improve efficiency. The college's advertising and marketing strategies are routinely evaluated. The college conducts regular qualitative surveys of citizens, business and industry, and former students. And finally, current students are asked to evaluate the services they have received.

This constant attention to performance and improvement serves as a framework for the focused study of student performance and student outcomes.

Table 1

CONTENT OF STUDENT OUTCOMES STUDY

SANTA FE COMMUNITY COLLEGE

TYPE OF OUTCOME	QUESTIONS	EXISTING SOURCES OF DATA
1. Knowledge	1. Are students prepared to succeed in a 4-year college program? 2. Are students prepared to enter and/or work in their field of study?	Transfer Study Graduate/Employer Follow-up Study Success Rate on Licensure Exams
2. Critical Thinking	1. Can students analyze what they read or hear for logical fallacies and propaganda? 2. Can students analyze a variety of problems (scientific, social, math etc.) and select or create solutions to problems?	ENG 111 Composition & Rhetoric syllabus Humanities, Science, Social Science electives syllabi in degree programs
3. Basic Skills a. Writing	1. Can students write a clear, coherent, well-organized essay which is substantially free of errors? 2. Can students do basic research and produce a document that synthesizes multiple perspectives? 3. Can students write practical documents such as letters, memos, reports, etc.?	ENG 111 Composition & Rhetoric syllabus ENG 112 Composition & Literature syllabus ENG 216 Technical Writing syllabus Success Rate and Withdrawal Rate Analysis of Selected Courses Final Grade Correlation Study of Selected Courses

TYPE OF OUTCOME		QUESTIONS	EXISTING SOURCES OF DATA
b.	Reading	1. Can students read an essay and pick out the main idea and supporting details? 2. Can students evaluate written material non-judgmentally? 3. Do students understand vocabulary in context?	ENG 111 Composition & Rhetoric syllabus SPCH 111 Public Speaking syllabus Success Rate and Withdrawal Rate Analysis of Selected Courses Final Grade Correlation Study of Selected Courses
c.	Speaking	1. Can students present their ideas in well-organized, effective extemporaneous and impromptu speeches?	SPCH 111 Public Speaking syllabus
d.	Math	1. Can students perform basic computational skills? 2. Can students use algebraic skills to simplify expressions and solve equations? 3. Can students use their computational and algebraic skills to solve applied problems in science, business and technical areas?	BSA 112 Bus. Math syllabus MATH 130 Intermediate Algebra syllabus Success Rate and Withdrawal Rate Analysis of Selected Courses Final Grade Correlation Study of Selected Courses
e.	Computer Literacy	1. Can students demonstrate their understanding of the operation and principles of a computer system and their proficiency with at least two applications?	CIS 111 Intro. to Computers syllabus CIS 111L Intro to Computers Lab syllabus
f.	Library Research	1. Can students analyze their research needs and then evaluate and synthesize the information they gather?	ENG 111 Composition & Rhetoric syllabus ENG 112 Composition & Literature syllabus

4.	Career Development/ Placement	1. Did student's experience at SFCC help his/her career advancement? 2. Did student's experience at SFCC contribute to a salary increase? 3. Did student's experience at SFCC lead to increased job satisfaction? 4. Did student's experience at SFCC help him/her change careers? 5. Did student's experience at SFCC provide him/her with the skills for the work world?	Graduate Follow-up Study Employer Follow-up Study Student Opinion Survey Success Rate on Licensure Exams
5.	Level of Educational Goals	1. Did students make progress toward their stated educational goals?	Student Opinion Survey Withdrawal Report
6.	Satisfaction with College Experience		
	a. Instruction	1. Are students satisfied with: (1) instructors, (2) individual courses, (3) degree and certificate programs?	Student Opinion Survey Withdrawal Report
	b. Services	1. Are students satisfied with: (1) academic support services, (2) student services, and (3) special services?	
	c. Facilities	1. Are students satisfied with classroom and laboratory facilities?	
	d. Staff	1. Are students satisfied with their treatment by College staff?	

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TABLE 2

LINKAGES BETWEEN OUTCOMES AND SFCC MISSION AND GOALS STATEMENT OR GENERAL EDUCATIONAL STATEMENT

Type of Outcome	Mission and Goals/General Education Statement
1. Knowledge	"Upon graduating from SFCC, students should be able to use learning experiences to think critically and make reasoned choices by acquiring, analyzing, synthesizing and evaluating knowledge.
2. Critical Thinking	Same as above.
3. Basic Skills	
a. Writing	"Upon graduating from SFCC, students should be able to use learning experiences to read, listen, write and speak effectively."
b. Reading	Same as above.
c. Speaking	Same as above.
d. Math	"Upon graduating from SFCC, students should be able to use learning experiences to understand and use quantitative information."
e. Computer Literacy	"Upon graduating from SFCC, students should be able to use learning experiences to understand basic computer operations and applications."
f. Library Research	"Upon graduating from SFCC, students should be able to use learning experiences to think critically and make reasoned choices by acquiring, analyzing, synthesizing and evaluating knowledge."
4. Career Development/ Placement	"To provide technical/occupational education and training leading to employment in business, industry, and government."
	"To provide developmental education programs through which students may acquire the basic verbal, quantitative, and cognitive skills necessary for access to entry-level employment and/or college-level education."

TABLE 2
(CONTINUED)

5. Level of Educational Goals	"To maintain the open enrollment admissions policy for all prospective students who desire and can benefit from learning opportunities."
	"To provide a general education program, preparing students to transfer to an institution that grants baccalaureate degrees, to complete college studies with an associate degree granted by the College, and/or for personal enrichment."
	"To provide technical/occupational education and training leading to employment in business, industry, and government."
	"To provide developmental education programs through which students may acquire the basic verbal, quantitative, and cognitive skills necessary for access to entry-level employment and/or college-level education."
6. Satisfaction with College Experience	"To make readily accessible a comprehensive program of student advising, counseling, testing, financial aid, career planning, and human development services."
	"To provide a general education program, preparing students to transfer to an institution that grants baccalaureate degrees, to complete college students with an associate degree granted by the College, and/or for personal enrichment."
	"To provide technical/occupational education and training leading to employment in business, industry, and government."
	"To provide developmental education programs through which students may acquire the basic verbal, quantitative, and cognitive skills necessary for access to entry-level employment and/or college-level education."

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ATTACHMENT A
STUDENT OUTCOMES STUDY ACTIVITIES

ACTIVITY	RESPONSIBLE DEPARTMENT	INITIATION OF STUDY
1. Graduate Follow-up Study*	Guidance Services	February
2. Employer Satisfaction Study*	Guidance Services	February
3. Course Success and Completion Studies of Selected Courses*	Arts and Sciences Business and Management Professional and Technical	June
4. Licensure Exams Success Rate*	Business and Management Professional and Technical	October
5. Correlation Study -- Final Exams and Acquired Completions of Selected Courses	Arts and Sciences Business and Management Professional and Technical	June
6. Semester Withdrawal Study Report	Admissions and Records	October, February, July
7. Student Opinion Survey**	Planning and Development	January
8. Transfer Study**	Admissions and Records	July
9. Special Topics Studies Annually Completed on a One-Time Basis	Outcomes Advisory Committee	September
10. Conduct Selected Outcomes Study	Designated Investigator	N/A
11. Distribute Outcomes Report Information	Committee Chair	July
12. Update Master List of Outcomes Studies	Committee Chair	August
13. Update Outcomes Plan	Committee Chair Outcomes Advisory Committee	August

* Conducted annually.
** Conducted every two years.

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ATTACHMENT B

STUDENT OUTCOMES RESEARCH FORMAT

Outline for Research Proposals:

A) Identification of the problem:
   1) Statement of purpose including background information.
   2) Definition of terms, including the population to be studied.
   3) Anticipated results of hypothesis.

B) Methodology or procedure followed:
   1) Data collection procedures:
      a) how subjects were chosen (sampling procedure).
      b) description of the instrument (test, survey etc.), including some background on how it was developed.
      c) how and when was the instrument administered.
   2) Proposed method of analysis and rationale for the choice.
   3) Statement of limitations of the study.

C) Results:
   1) Analysis results.
   2) Conclusions that can be drawn or short summary.
   3) Recommendations.

The above outline has been adapted for the book Research Methods in Education 3rd Edition by William Wiersma, Ph.D.

Sampling Definitions & Procedures

Population: A population is all the subjects/students that satisfy the conditions of interest. For example, if you wish to study the success of the students in our nursing program, the population is all the SFCC nursing students both past and present.

Sample: A sample is a portion of the population of interest.

In studies, if it is feasible, it is best to use data from the entire population. In doing this, you guarantee that the results are a true representative of what is going on within the entire population. If it is impractical to use the entire population, the next best situation is to choose a random sample of the population.

Random sample: A sample where each member of the population has the same chance of being selected for the study.

The types of random samples include:

- -Simple random sample: where the sample is chosen entirely at random from the population usually with the aid of a random number table or a computer random number generator.
- -Stratified random sample: where the population is divided into groups (strata) and a simple random sample is picked from each group. Because this guarantees representation from all groups, this method has a lower sampling error than a simple random sample.
- -Cluster sample: where the population is divided into small homogeneous groups, a number of groups are then chosen at random and all the subjects in the groups chosen are used in the study. This method gives a higher sampling error than a simple random sample but may have its application in a setting such as ours where we do not have such groups set up automatically (classes).

If you do not use one of the random sampling techniques, you must include a rational of why the sample picked is a representative of the population in question. Even with a good explanation the chances for error are much higher than if a random sample is chosen or the entire population is used. Not taking a random sample or using the entire population will restrict your ability to generalize the results to any population. This may make the entire study useless.

There is no one standard for the optimal sample size. For a general guide, follow the chart for the The ACT Evaluation/Survey Service: User's Guide (see Appendix A in the guide:. If you need more information on sample sizes, you should consult someone knowledgeable in the area.

Hypothesis Testing vs. Descriptive Methods:

Whether your analysis will include descriptive methods or hypothesis testing should be governed by your statement of purpose. If all you wish to do is to report on the "state" of the population, descriptive methods are appropriate. If you wish to compare the population of interest with another population or indicate some sort of improvement in the population, you must use a method of analysis involving hypothesis testing. Descriptive measures include the calculations of statistics/parameters such as frequencies, proportions, means, medians, and modes. When performing hypothesis test (comparisons, you may calculate descriptive measures but you will also apply an acceptable statistical test to determine whether the comparisons indicate any significant differences of significant relationship. In general, if the purpose of the research involves some sort of comparison, you should seek out qualified help in determining which hypothesis test is most appropriate.

It is important to note that if you are using descriptive methods, you cannot make any statement indicating improvement, equivalence, superiority, etc. (any statement of comparison). You can only indicate that the results represent the "state" of the population.

The Use of Evaluation Instruments:

When using any instrument, test or survey, the results will depend on the validity and reliability of the instrument.

Validity: The extent to which the instrument measures what it says it measures.

Reliability: The extent to which the results the instrument produces are consistent over time.

Because it is no easy task to come up with a reliable and valid instrument, it is best to see if any tested instruments are available before you devise your own. Many instruments already developed have been evaluated for both their reliability and validity.